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CNC CHARLESTON
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LETTER TRANSMITTING MONITORING WELL CONSTRUCTION AND DEVELOPMENT
LOGS ZONE H CNC CHARLESTON SC
11/16/1998
ENSAFE INC.



ENSAFE INC.

ENVIRONMENTAL AND MANAGEMENT CONSULTANTS

935 Houston Northcutt Blvd., Suite 113 • Mt. Pleasant, SC 92464 • Telephone 843-884-0029 • Facsimile 843-856-0107 • www.ensafe.com

November 16, 1998

Paul Bergstrand
Department of Health and Environmental Control
Bureau of Solid and Hazardous Waste
8901 Farrow Road
Columbia, South Carolina 29203

RE: Submittal of Monitoring Well Construction and Development Logs at Zone H, Naval Base Charleston, Charleston, SC.

Dear Mr. Bergstrand:

On behalf of the Southern Division Naval Facility Engineering Command, EnSafe Inc., is submitting copies of the well construction and development logs for four (4) shallow monitoring wells installed at SWMU 9 in Zone H. These monitoring wells were installed in the marsh near monitoring well NBCH009007 and in accordance with the monitoring well permit approval number HW-98-050.

Also included is a final copy of the boring log from the Zone I shallow well NBCI680003. This log serves as a replacement for the previous NBCI680003 boring log submitted to SCDHEC on June 18, 1988 as part of well permit approval number HW-98-012. At the date of the previous submittal, survey data had not yet been generated for NBCI680003.

Please do not hesitate to call if you have any questions, or if we can be of further assistance.

Sincerely,
EnSafe Inc.

By: Todd K. Kafka
Hydrogeologist

Enclosures

cc: Billy Drawdy, Caretakers Site Office
Tony Hunt, SOUTHDIV
Project file 2908-08014 (CMS Field Work)



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Also included is a final copy of the boring log from the Zone I shallow well NBCI680003. This log serves as a replacement for the previous NBCI680003 boring log submitted to SCDHEC on June 18, 1988 as part of well permit approval number HW-98-012. At the date of the previous submittal, survey data had not yet been generated for NBCI680003.

Please do not hesitate to call if you have any questions, or if we can be of further assistance.

Sincerely,
EnSafe, Inc.

By: Todd K. Kafka
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Enclosures

cc: Henry R. Sheppard II, P.E., Caretakers Site Office
Tony Hunt, SOUTHDIIV
Project file 2908-08014 (CMS Field Work)

85 14-080?

Project: ZONE H - Naval Base Charleston

Coordinates: 2321484.4 E, 370985.3 N

Location: Charleston, SC

Surface Elevation: 4.4 feet msl

Started at 1600 on 7-13-98

TOC Elevation: 6.91 feet msl

Completed at 1650 on 7-13-98

Depth to Groundwater: 3.70 feet TOC Measured: 7/21/98

Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon

Groundwater Elevation: 3.21 feet msl

Drilling Company: Alliance Environmental (SC cert# 889)

Total Depth: 7.5 feet

Geologist: J. Luncford

Well Screen: 2.5 to 6.8 feet

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
5								<p>Ground surface consists of marsh grass and mud. Location lies in marsh; no lithologic samples taken; logged from cuttings</p> <p>Cuttings from 0-8' bgs: black, silty sandy clay to clayey silt, with rock fragments and ROC, saturated, fuel and solvent odor. Downhole FID readings of 1900 ppm, 2.5 ppm in breathing zone.</p>		
10										
15										
20										

Project: ZONE H - Naval Base Charleston

Coordinates: 2321435.8 E, 370998.1 N

Location: Charleston, SC

Surface Elevation: 3.8 feet msl

Started at 0750 on 7-14-98

TOC Elevation: 6.35 feet msl

Completed at 0835 on 7-14-98

Depth to Groundwater: 3.20 feet TOC Measured: 7/21/98

Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon

Groundwater Elevation: 3.15 feet msl

Drilling Company: Alliance Environmental (SC cert# 889)

Total Depth: 7.7 feet

Geologist: J. Lunceford

Well Screen: 2.7 to 7.0 feet

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
5								<p>Ground surface consists of marsh grass and mud. Location lies in marsh; no lithologic samples taken; logged from cuttings</p> <p>Cuttings from 0-10' bgs: dk. gray-black, silty clay to clayey silt w/ significant subsurface debris and concrete. Downhole FID reading of 200 ppm in borehole.</p>		
10										
15										
20										

Project: ZONE H - Naval Base Charleston

Coordinates: 2321393.0 E, 3710213 N

Location: Charleston, SC

Surface Elevation: 4.0 feet msl

Started at 1040 on 7-14-98

TOC Elevation: 6.49 feet msl

Completed at 1130 on 7-14-98

Depth to Groundwater: 3.49 feet TOC Measured: 7/21/98

Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon

Groundwater Elevation: 3.00 feet msl

Drilling Company: Alliance Environmental (SC cert# 889)

Total Depth: 7.5 feet

Geologist: J. Lunceford

Well Screen: 2.5 to 6.8 feet

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
5								<p>Ground surface consists of marsh grass and mud. Location lies in marsh; no lithologic samples taken; logged from cuttings</p> <p>Cuttings from 0-9.5' bgs: dk. gray-black, silty clay to clayey silt w/ significant subsurface debris and concrete.</p>		<p>WELL DIAGRAM</p> <p>0.01 slot PVC screen</p> <p>2" ID, Sch. 40 PVC riser</p> <p>end cap</p> <p>grout</p> <p>10-20 sand filter</p> <p>bentonite seal</p> <p>hole collapse</p>
10										
15										
20										

Project: ZONE H - Naval Base Charleston

Coordinates: 2321402.7 E, 370957.8 N

Location: Charleston, SC

Surface Elevation: 4.0 feet msl

Started at 1500 on 7-15-98

TOC Elevation: 6.58 feet msl

Completed at 1550 on 7-15-98

Depth to Groundwater: 3.08 feet TOC Measured: 7/21/98

Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon

Groundwater Elevation: 3.50 feet msl

Drilling Company: Alliance Environmental (SC cert# 889)

Total Depth: 7.5 feet

Geologist: J. Lunceford

Well Screen: 2.5 to 6.8 feet

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
5								Ground surface: gravel and ROC		
								Cuttings from 0-8.5' bgs: dk. gray, silty clayey sand w/ significant subsurface debris and concrete.		
10										
15										
20										

ENSAFE
NAVAL BASE CHARLESTON
WELL DEVELOPMENT STATUS REPORT
ZONE H

WELL DEVELOPMENT SUMMARY

Well:NBCH\009027

Summary Log of well development progress.
 Readings are final readings for each visit.
 Volume data are cumulative from start of development.

DATE	Time	VOLUME Gallons	pH	Cond mS/cm	Turb NTU	Temp Celsius	Sal %
07-17-98	1240	10	6.72	13.6	999	29.6	0.78
	1243	15	6.69	13.7	344	27.8	0.79
	1255	18	6.68	14.1	168	27.3	0.81
	1345	60	6.67	13.7	123	26.4	0.79
	1400	75	6.65	13.7	83	26.8	0.79
	1425	110	6.68	13.8	30	25.9	0.80

Well Development Completed on: 07-17-98

COMMENTS: All data recorded in CMS Well Development Log Book, page 24.

ENSAFE
NAVAL BASE CHARLESTON
WELL DEVELOPMENT STATUS REPORT
ZONE H

WELL DEVELOPMENT SUMMARY

Well:NBCH\009028

Summary Log of well development progress.
 Readings are final readings for each visit.
 Volume data are cumulative from start of development.

DATE	Time	VOLUME Gallons	pH	Cond mS/cm	Turb NTU	Temp Celsius	Sal %
07-17-98	1540	27	6.75	14.7	66	27.2	0.86
	1559	45	6.63	15.0	10	25.9	0.87
	1603	50	6.80	15.1	10	25.9	0.88

Well Development Completed on: 07-17-98

COMMENTS: All data recorded in CMS Well Development Log Book, page 25.

ENSAFE
NAVAL BASE CHARLESTON
WELL DEVELOPMENT STATUS REPORT
ZONE H

WELL DEVELOPMENT SUMMARY

Well:NBCH\009029

Summary Log of well development progress.
Readings are final readings for each visit.
Volume data are cumulative from start of development.

DATE	Time	VOLUME Gallons	pH	Cond mS/cm	Turb NTU	Temp Celsius	Sal %
07-17-98	1545	55	6.86	16.0	112	25.4	0.94
	1605	110	6.97	16.4	10	25.2	0.96
	1607	112	6.94	16.6	0	25.5	0.98

Well Development Completed on: 07-17-98

COMMENTS: All data recorded in CMS Well Development Log Book, page 26.

ENSAFE
NAVAL BASE CHARLESTON
WELL DEVELOPMENT STATUS REPORT
ZONE H

WELL DEVELOPMENT SUMMARY

Well:NBCH\009030







Summary Log of well development progress.
 Readings are final readings for each visit.
 Volume data are cumulative from start of development.

DATE	Time	VOLUME Gallons	pH	Cond mS/cm	Turb NTU	Temp Celsius	Sal %
07-17-98	1230	35	6.47	11.8	322	28.8	0.67
	1235	40	6.49	11.9	142	28.8	0.68
	1245	55	6.47	12.2	188	28.8	069
	1256	65	6.46	12.3	69	28.7	0.70
	1330	90	6.44	11.6	351	28.6	0.66
	1345	120	6.42	11.7	120	28.6	0.66
	1355	135	6.37	11.3	63	28.8	0.64
	1414	165	6.38	11.5	45	28.7	0.65
	1437	190	6.38	11.3	24	28.7	0.64

Well Development Completed on: 07-17-98

COMMENTS: All data recorded in CMS Well Development Log Book, page 23.

Project: ZONE I - Naval Base Charleston	Coordinates: 2326520.20 E, 370948.37 N
Location: Charleston, SC	Surface Elevation: 9.6 feet msl
Started at 1640 on 3-16-98	TOC Elevation: 9.32 feet msl
Completed at 1800 on 3-16-98	Depth to Groundwater: 4.35 feet TOC Measured: 3/24/98
Drilling Method: 4.25" ID (7.5" OD) HSA with split spoon	Groundwater Elevation: 4.97 feet msl
Drilling Company: Alliance Environmental (SC Cert #1005)	Total Depth: 12.5 feet
Geologist: T. Kafka	Well Screen: 2.5 to 12.0 feet

DEPTH IN FEET	LITHOLOGIC SAMPLE	ANALYTICAL SAMPLE	SAMPLE NO.	OVA (ppm)	% RECOVERY	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	ELEV. (ft-msl)	WELL DIAGRAM
								Surface conditions: asphalt.		
5			1	0	70		FILL	Fill: rocks and sandy gravel.	5.9 5.6	
							ML CL	Silt: olive-brown; clayey; trace-some very fine to fine sand; firm.	4.5	
			2	0	60		ML SM	Silt: olive-brown; dark black, very fine to fine, phosphatic sand present as lenses; shell hash and PO ₄ nodules; moist to wet.	3.6 2.4	
							ML SM	Silt: as above w/ dark black silty laminae; sticky; saturated.	1.6 1.1	
10			3	0	25		OL	Clay: medium gray; silty; trace very fine to fine sand; soft; low to medium plasticity; moist.	.4	
			4	0	100		ML SM	Silt: olive-brown; very fine to fine, black, phosphatic sand as lenses throughout; firm; wet; at 11.8-11.9', coarse to very coarse shell hash.	1.6 2.4	
15										
20										